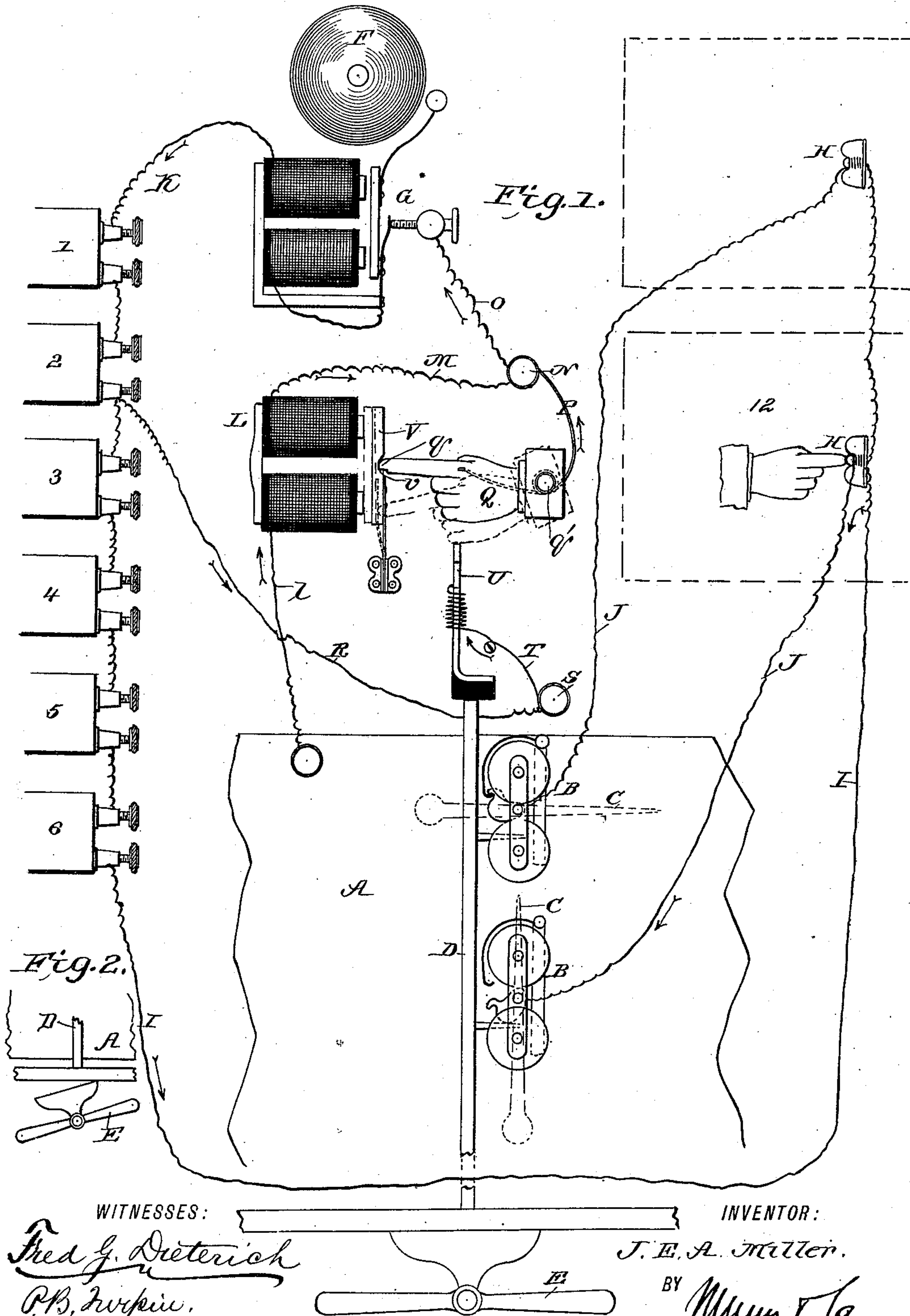


(No Model.)

J. E. A. MILLER.
ANNUNCIATOR AND INDICATOR SYSTEM.

No. 447,195.

Patented Feb. 24, 1891.



WITNESSES:

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JOHN E. A. MILLER, OF SAN FRANCISCO, CALIFORNIA.

ANNUNCIATOR AND INDICATOR SYSTEM.

SPECIFICATION forming part of Letters Patent No. 447,195, dated February 24, 1891.

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To all whom it may concern:

Be it known that I, JOHN E. A. MILLER, of San Francisco, in the county of San Francisco and State of California, have invented a new and useful Improvement in Annunciator and Indicator Systems, of which the following is a specification.

This invention is an improvement in electric indicator and annunciator systems, and has for its objects, among others, to provide means by which to cause the annunciator-bell to sound until the attendant goes to the board and replaces the indicator, which will automatically adjust the cut-out switch and stop the annunciator-bell; to automatically cut out a portion of the combined batteries for the continuous operation of the annunciator, thereby saving the annunciator and batteries from the rapid deterioration which would otherwise result from short-circuiting the entire battery; to so construct the parts that an attempt on the part of the attendant to tie the indicator-rod and prevent the apparatus from calling will cause the annunciator-bell to sound and continue to sound so long as the parts are so tied, and to dispense with the heavy resistance of the external circuit for the continuous operation of the annunciator by the short or cut-out circuit, and leave such portion of the series of cells after a cut-out as to overcome the resistance and operate the external circuit up to the point of cut-out if occasion requires—as, for instance, if two calls should occur nearly together. By operating the external circuit up to the point of cut-out I mean this: If the main circuit be closed, the short circuit will be closed by the devices shown, and will include the cells 1 and 2; and if the main circuit be opened by removing the finger from the push-button the bell will continue to ring. If while the bell is ringing a signal be sent from another room or point, it is evident there must be sufficient cells or battery to operate the external circuit up to the point of cut-out to drop the indicator.

The invention consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a rear view of

a part of an indicator and annunciator constructed according to my invention, the circuits, battery, &c., being shown in somewhat diagrammatic form; and Fig. 2 is a detail view.

In carrying out my invention I employ the ordinary indicating-board having the usual brass plate A, of which a section is shown, electro-magnets B, which I term the “indicator-magnets,” indicator hands or pointers C, for operation by said electro-magnets, adjusting-bars D for adjusting said pointers or hands back to normal position, lever E for operating the said adjusting-bars, the series of cells 1, 2, 3, 4, 5, and 6, the annunciator-bell F and its magnet G, the push-button or other suitable circuit-closer H in the rooms or other points from which the signaling is to be effected, the positive wire I, leading from the battery to the several rooms or signaling-points, the negative wires J, leading from such points to the respective indicating-magnets, and the negative wire K, leading from the battery to the annunciator-bell magnet. Inasmuch as the said parts A to K, inclusive, and the battery are not in themselves claimed to be of my invention, but are well understood by those versed in electrical science, they require no detailed description herein.

My invention resides, mainly, in the mechanism between the indicating devices and the annunciator-bell and battery, whereby the closing of the external or main signaling circuit will operate to close the short annunciator-circuit and cause the annunciator-bell to sound until such short circuit is broken, in the manner presently described.

The electro-magnet L, which for convenience of reference I term the “switch-magnet,” is connected by a wire l with the indicator-plate. The magnet L is also connected by a wire M O with the annunciator-bell magnet. A wire P connects the binding-post N with the switch composed of the members Q and U. The short-circuit wire R leads in the arrangement shown from the battery-cell 2 to a post S, which post S is connected by a wire T with the switch member U. The armature V of the switch-magnet L is spring-actuated and held normally clear of its magnet and movable toward and from the same, being provided with a notch or bearing at v for en-

gagement by the point q of switch member Q. This switch member Q is pivoted at q' at its end opposite point q and is spring-actuated, the stress of the spring operating to force the switch member Q, when the latter is released, down against the switch member U and so form a short circuit through the wire R, making a short annunciator-bell circuit including only two of the battery-cells or such proportion of battery-cells as to leave a remainder sufficient to overcome the resistance of and operate the external circuit up to the point of cut-out.

The switch member U is movable longitudinally in guides and is actuated downward by a spring. This switch member U is arranged to be forced upward by the upward movement of the adjusting-bar D as the latter is moved to set the indicators or pointers to their normal positions.

It will be understood that the invention is adapted for use on shipboard, in hotels, or elsewhere where it is desired to signal from a number of different compartments or points to a single station; and it will be understood that the indicator-plate may contain as many indicating devices as there are stations from which to signal, one helix of each of the indicating-magnets being connected with the plate A and the other with the corresponding room or station.

In the construction shown the parts are indicated in dotted lines, as if the circuit had been closed by signaling from room 12. In such case the main or external circuit is closed, the current passing through the magnet B in circuit with room 12 and magnets G L. The magnet L being thus energized attracts its armature V, and the latter releases switch member Q, which will drop onto the switch member U. Now the current passing through the magnet B corresponding to room 12 will have energized such magnet and caused it to attract its armature and release its pointer C, which will indicate to the attendant the room from which the call was made. The contact of switch members Q and U will complete the short annunciator-bell circuit through wires K R and including battery-cells 1 and 2, ringing the bell only by the current from such battery-cells. When the finger is removed from the circuit-closer in room 12, this opens the external or main circuit, but does not affect the ringing of the bell, which, as before stated, is operated by the short circuit, and will continue to ring until the attendant operates the lever E to cause the adjusting-rod D to move switch member U up to set switch member Q into engagement with bearing v of armature V, when, as the bar D is lowered, the switch member U will drop clear of switch member Q and open the short circuit, stopping the bell. The upward movement of the adjusting-bar readjusts the indicator to its normal position.

The apparatus may be used as a call-bell,

as by pushing the adjusting-bar up the short circuit will be closed and the annunciator-bell be rung until the adjusting-bar is lowered. It will be seen, therefore, that the attendant cannot tie up the lever to prevent the annunciator from ringing, as in so doing he will start and continue the ringing of the bell until the lever is released.

The operation of the lever E to lift the rod D is shown in Fig. 2. It will be seen that if the rod D be pushed up sufficiently to readjust the last indicator dropped it will also push the part U up into contact with the part Q and complete the short circuit and cause the bell to continue ringing. So it is evident that the lever must be left in a horizontal position.

By the short-circuiting of less than all the battery-cells I cut out all the surplus resistance, and the bell will ring louder or stronger from the two batteries with the slight resistance met with in the short circuit than from all the batteries in the extreme or main circuit with the increased resistance of such circuit. I thus avoid the deterioration of the surplus batteries by the ringing of the annunciator and the rapid destruction of the annunciator-bell magnet by the current from all the batteries.

It will be seen that the switch-actuating springs form portions of the cut-out circuit, such construction being simple and compact.

Having thus described my invention, what I claim as new is—

1. The combination of a battery, a main or external circuit including the annunciator and the magnet L, having an armature provided with a bearing v , a switch composed of two movable members, one Q arranged to engage in bearing v , the other U arranged to be engaged by said member Q when released from the bearing v , said switch being included in a local circuit containing a signaling device.

2. The combination of the indicators or pointers and their magnets, the pointer-adjusting bar, the battery, the annunciator-bell, the switch-magnet L, the switch composed of two movable members, one Q arranged to engage the armature of the magnet L and the other U arranged to be engaged by said member Q when released from engagement with the said armature, the said switch being included in a local circuit containing a signaling device.

3. In an electric signaling system, the combination, with the magnet L, having its armature provided with a bearing v , of the switch member U, movable longitudinally, the switch member Q, having a point q arranged to engage in the bearing v , and arranged when released from said bearing v to engage the switch member U, the annunciator-bell, the indicator, the battery, and the necessary connecting-wires, all substantially as and for the purposes set forth.

4. In an electric signaling system, the com-

5 bination of the wires and connections forming the main and short circuits, an audible signal in the short circuit, visual signals in the main circuit, a closer for the short circuit, including a magnet in the main circuit, a switch composed of two members Q and U, movable as described, and the indicator-adjusting bar D, arranged to engage switch member U and readjust the same and switch

member Q to their normal positions in the movement of such bar D to readjust the pointers of the visual indicators, substantially as set forth.

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Witnesses:

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